03-04-08

AF

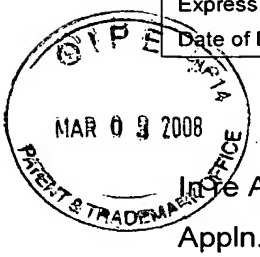
IFW

BRINKS HOFER GILSON &LIONE

U.S.P.S. EXPRESS MAIL "POST OFFICE TO ADDRESSEE" SERVICE DEPOSIT INFORMATION

Express Mail Label No.: EM091253174 US

Date of Deposit: March 3, 2008



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of:	ROLAND HENGERER		
Appln. No.:	10/766,738	Examiner:	Desta, Elias
Filed:	January 27, 2004	Art Unit:	2857
For:	DETERMINATION OF THE AGE, IDENTIFICATION AND SEALING OF A PRODUCT CONTAINING VOLATILE COMPONENTS	Conf. No.:	2842
Attorney Docket No:	10022/580		

Mail Stop Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Sir:

Attached is/are:

☒ Appeal Brief (original and 1 copy), Deposit Account No. 23-1925 Charge of $510.00.

☒ Return Receipt Postcard.

Fee calculation:

☒ No additional fee is required.

☐ Small Entity.

☐ An extension fee in an amount of $_____ for a _____-month extension of time under 37 CFR § 1.136(a).

☐ A petition or processing fee in an amount of $_____ under 37 CFR § 1.17(_____).

☐ An additional filing fee has been calculated as shown below:

						Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra		Rate	Add'l Fee	or	Rate	Add'l Fee
Total		Minus				x $25=			x $50=	
Indep.		Minus				X105=			x $210=	
First Presentation of Multiple Dep. Claim						+$185=			+ $370=	
						Total	$		Total	$

Fee payment:

☐ A check in the amount of $_____ is enclosed.

☒ Please charge Deposit Account No. 23-1925 in the amount of $510.00 for the Appeal Brief fee. A copy of this Transmittal is enclosed for this purpose.

☐ Payment by credit card in the amount of $_____ (Form PTO-2038 is attached).

☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925. A copy of this Transmittal is enclosed for this purpose.

Respectfully submitted,

March 3, 2008
Date

John C. Freeman, Esq. (Reg. No. 34,483)

BRINKS HOFER GILSON & LIONE
NBC Tower – Suite 3600, 455 N. Cityfront Plaza Drive, Chicago, IL 60611-5599

BRINKS HOFER GILSON &LIONE

"Express Mail" mailing label number EM091253174 US

Date of Deposit: March 3, 2008

Our Case No. 10022/580

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	
Roland Hengerer	
Serial No. 10/766,738	Examiner: Desta, Elias
Filing Date: January 27, 2004	Group Art Unit No. 2857
For DETERMINATION OF THE AGE, IDENTIFICATION AND SEALING OF A PRODUCT CONTAINING VOLATILE COMPONENTS	Confirmation No.: 2842

APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

03/05/2008 SDENBOB3 00000013 231925 10766738
01 FC:1402 510.00 DA

Dear Sir:

This Appeal is in response to the Office Action mailed October 3, 2007[1].

[1] A Notice of Appeal was mailed on January 3, 2008 and received by the U.S. Patent Office on January 7, 2008. Since the Notice of Appeal was filed within three months of the mailing date of the Office Action and the present Appeal Brief is being filed within two months of the filing of the Notice of Appeal, the present Appeal Brief is timely filed. While the Office Action was made non-Final, the claims on Appeal have been twice rejected and so the present Appeal is permitted pursuant to 37 C.F.R. §41.31(a).

I. REAL PARTY IN INTEREST

Accenture Global Services GmbH is the real party of interest in this Appeal.

II. RELATED APPEALS AND INTERFERENCES

The undersigned, John C. Freeman, is not aware of any other appeals, interferences or other judicial proceedings that may be related to, would directly affect or be directly affected by or have a bearing on the Board's decision in the pending Appeal.

III. STATUS OF CLAIMS

The status of the claims is as follows:

Claims 9 and 13 are rejected under 35 U.S.C. § 102(b) as being anticipated by the article "Identification of New Volatile Thiols in the Aroma of Vitis Vinifera L. Var. Sauvignon Blac Wines" by Tominaga et al. (hereinafter "Tominaga et al.").

Claims 1, 3-5, 8 and 12 are rejected under 35 U.S.C. § 103 as being obvious in view of the article "Attempts at Simplified Measurement of Odors in Japan Using Odor Sensors" by Kita (hereinafter "Kita") when combined with the article "Using an Electronic Nose for Determining the Spoilage of Vacuum Packaged Beef" by Blixt et al. (hereinafter "Blixt et al.").

Claims 6 and 7 are rejected under 35 U.S.C. § 103 as being obvious in view of Kita and Tominaga et al. (and Blixt et al., see footnote 4, below, at page 19);

Claims 10 and 11 are rejected under 35 U.S.C. § 103 as being obvious in view of Kita, Blixt et al. and Tominaga et al.

Claims 2 and 14 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form and including all of the limitations of the base claim and any intervening claims.

The above-mentioned rejections of claims 1 and 3-13 are the subject of this Appeal.

IV. STATUS OF AMENDMENTS

No Amendments have been filed since prosecution was reopened on June 19, 2007.

V. SUMMARY OF CLAIMED SUBJECT MATTER

An understanding of the invention of independent claims 1, 8-10 and 12 can be made upon a review of the embodiments of the invention shown in Figs. 1-2[2] of the specification.[3] Note that in the description to follow, like elements will employ identical identification numerals.

Fig. 1 schematically shows an embodiment of a system that includes a central processing unit 1 receiving measurement signals S3 and S4 from an electronic nose 2 (Paragraph 0033). For example, the electronic nose 2 may be an acquisition peripheral

---

[2] It is noted that the Office Action has asserted that Figs. 1-2 do not illustrate the claimed methods/inventions of claims 1, 8 and 10. Appellant believes that the discussion to follow shows that the objection has no merit. Appellant will address the objection once a decision is reached regarding the present Appeal.

[3] The Interview Summary mailed on January 14, 2008 indicates "Applicant will clarify the different aspect of the claimed invention up on formal response." While the undersigned does not remember agreeing to providing such clarification, it is believed that the present Summary of Claimed Subject Matter section more than adequately describes the various embodiments of Appellant's inventions.

of a computer performing the methods that will be described hereinafter (Paragraph 0037). Sensors 3 and 4 of the electronic nose are disposed above a sample 5 to be analyzed (Paragraph 0033). The two sensors 3 and 4 are used for age determination (Paragraph 0035).

Each sensor in the sensor array responds specifically to a given chemical compound (Paragraph 0034). In that way, it is possible to obtain a "smell print" for a given chemical compound or mixture (Paragraph 0034). Conventionally, this signature or print is a set of digital readings or measurements corresponding to the reading from the set of sensors (Paragraph 0034).

The theory that is the basis for one or more of Appellant's inventions will be discussed presently. In particular, due to physical evaporation (and/or chemical decomposition) of a scent, the scent intensity of a given (single or composite) scent follows the following equation in close approximation:

$$I(t, \xi(t)) = I_0 \, \eta(\xi(t)) \cdot e^{-\alpha t},$$

where t designates time, I designates a measure for the scent strength measured quantitatively with a sensor of a known electronic nose, α designates a time constant/decay rate depending on the volatile components of a scent, and η designates an unknown function taking into account all external parameters ξ such as temperature, atmospheric pressure, distance to the object, etc., for which the evolution versus time is not necessarily known (Paragraphs 0023-0024).

Due to the unknown function $\eta(\xi(t))$, it is not possible to solve directly the above equation, even knowing the measured value I_0 at a reference instant (Paragraph 0025). The scent signals may be measured for at least two different scents (two different sensors of the electronic nose with different decay constants (α)) (Paragraph 0026). Consequently, the above equation applied to both scent signals can be expressed in the following manner, where indexes 1 and 2 designate the respective scents or sensors:

$I_1(t, \xi(t)) = \eta(\xi(t))\, I_{01} \cdot e^{-\alpha_1 t}$, and

$I_2(t, \xi(t)) = \eta(\xi(t))\, I_{02} \cdot e^{-\alpha_2 t}$ (Paragraph 0026).

Since the two signals are always measured simultaneously, the term $\eta(\xi(t))$ is essentially identical in both equations (Paragraph 0027).

The ratio σ of the two measurement signals depends only on the time and on decay constants given by each sensor:

$$\sigma = \frac{I_2\left(t,\xi(t)\right)}{I_1\left(t,\xi(t)\right)} = \sigma_0 \cdot e^{(\alpha_1-\alpha_2)t} ,$$

wherein σ_0 designates a measured reference ratio at a reference time (for example, at the opening of a bottle or at the packaging of goods) (Paragraphs 0028 and 0029). The ratio σ_0 is measured at a reference time that defines the age zero of the product (Paragraph 0029). The scent ratio curve, such as that shown in Fig. 2, can be registered (Paragraph 0041).

Knowing the reference ratio σ_0 and the decay constants α_1 and α_2, the age *t* of the product from a reference instant is determined by the equation below:

$$t = (\alpha_1 - \alpha_2)^{-1} \cdot \ln\left(\frac{\sigma}{\sigma_0}\right)$$ (Paragraph 0029).

The constants α_1 and α_2 can be determined, for example during a learning step or a characterization step of the system, by measuring the scent intensity versus time of the corresponding volatile components when recorded with the sensors of the system (Paragraph 0031).

The age t can be determined by using an equation or using the registered scent ratio curve (Paragraphs 0041 and 0042). The age t of an opened package of goods with volatile components can be used to determine the freshness of the goods (Paragraph 0003).

Besides determining the age and freshness of a product, it is possible to use smell prints of products for identification purposes, as each product, goods or object with volatile components has a unique scent print (Paragraph 0017).

According to yet another exemplary embodiment, a scent print is sprayed on the surface of a product (Paragraph 0018). The scent print can be preregistered and preferably corresponds to a non-smelling scent (Paragraph 0018). Hence, the object is marked with an "invisible" scent print (Paragraph 0018). Furthermore, a volatile product identification code can be applied to a product only by spraying *m* (*m* = 2, 3, 4, . . .) scents (or a composite scent containing m volatile components) on the product (Paragraph 0032). It is possible to mark the product at the time of packaging (for

example, inside the package) or at the time of opening by spraying two scents on it (Paragraph 0044).

In another embodiment, sealing of an object is achieved by introducing into an impermeable seal, attached to or containing the object, at least two volatile components, the components being chosen for containing the respective first and second scents to which the system is responsive (Paragraph 0049). The reference scent ratio σ_0 corresponds to the scent strengths ratio when sealing (Paragraph 0049). If the seal has been broken some of the volatile components will have leaked out so that a current scent ratio σ should differ substantially (by more than an acceptable error ε, *i.e.*, $| \sigma - \sigma_0 | > \varepsilon$) from the provided value for an intact seal which should be close to the initial value at instant zero (reference scent ratio σ_0) (Paragraph 0049).

With the above summary in mind, claim 1 claims an embodiment of the invention as a method for determining an age of an object that includes measuring a first strength of a first scent of the object with a first electronic sensor, a decay rate constant (α_1) of the first scent being known and measuring simultaneously a second strength of a second scent of said object with a second electronic sensor, a decay rate constant (α_2) of said second scent being known. Examples of the recited electronic sensors are the sensors 3 and 4 shown in Fig. 1 (Paragraphs 0026, 0033 and 0035). The method of claim 1 further includes calculating a current scent ratio (σ) of the first and second scent strengths. An example of such calculating is described in paragraphs 0028 and 0029 of Appellant's Specification. The method of claim 1 further includes calculating an age of the object starting from a reference time for which a reference scent ratio (σ_0) of the scent strengths has been registered and displaying the age. An example of the recited

calculation can be found with the equation described at paragraph 0029 of Appellant's Specification. Examples of displaying the age are the displaying performed by screen 7 shown in Fig. 1 (Paragraph 0037) and the portable device described at paragraph 0038 of Appellant's Specification.

Claim 8 claims an embodiment of the invention as a method of determining a freshness of goods from a reference time that includes measuring a first strength of a first scent of the goods with a first electronic sensor, a decay rate constant (α_1) of the first scent being known and measuring simultaneously a second strength of a second scent of the goods with a second electronic sensor, a decay rate constant (α_2) of the second scent being known. Examples of the recited electronic sensors are the sensors 3 and 4 shown in Fig. 1 (Paragraphs 0026, 0033 and 0035). The method of claim 8 further includes calculating a current scent ratio (σ) of the first and second scent strengths. An example of such calculating is described in paragraphs 0028 and 0029 of Appellant's Specification. The method of claim 8 further includes calculating a freshness of the goods starting from a reference time for which a reference scent ratio (σ_0) of the scent strengths has been registered and displaying an indicator of the freshness. An example of the recited calculation can be found with the equation described at paragraph 0029 of Appellant's Specification. Examples of displaying the indicator of the freshness are the displaying performed by screen 7 shown in Fig. 1 (Paragraph 0037) and the portable device described at paragraph 0038 of Appellant's Specification.

Claim 9 claims an embodiment of the invention as a method of marking an object with a volatile identification code that includes spraying a first volatile component onto the object and spraying a second volatile component onto the object, wherein volatile

characteristics of the first and second volatile components sprayed on the object define the volatile identification code. An example of such spraying includes spraying a unique scent print, via volatile components, onto a product at the time of packaging or opening (Paragraphs 0017, 0018, 0032 and 0044).

Claim 10 claims an embodiment of the invention as a method of sealing an object that includes introducing into an impermeable seal attached to the object a first and second volatile component. An example of the recited introducing is the sealing of an object that includes introducing into an impermeable seal, attached to or containing the object, at least two volatile components, the components being chosen for containing the respective first and second scents to which the system is responsive (Paragraph 0049). The claimed invention further includes simultaneously determining a first scent strength of the first volatile component and a second scent strength of the second volatile component at a time when the impermeable seal is unbroken and determining a reference scent ratio (σ_0) from the first and second scent strengths. Such determining is described at paragraph 0049 of Appellant's Specification. The invention of claim 10 further includes determining whether the impermeable seal is broken based on the reference scent ratio (σ_0). An example of determining whether the impermeable seal is broken is the described process of determining if the seal has been broken so that some of the volatile components will have leaked out so that a current scent ratio σ differs substantially (by more than an acceptable error ε, *i.e.*, $| \sigma - \sigma_0 | > \varepsilon$) from the provided value for an intact seal which should be close to the initial value at instant zero (reference scent ratio σ_0) (Paragraph 0049).

Claim 12 claims an embodiment of the invention as a system for determining an age of an object containing first and second volatile components that includes a first electronic sensor that generates a first signal in response to a first scent of the first volatile component and a second electronic sensor that generates a second signal in response to a second scent of the second volatile component. Examples of the recited electronic sensors are the sensors 3 and 4 shown in Fig. 1 (Paragraphs 0026, 0033 and 35). The claimed invention further includes a calculating unit for calculating a current scent ratio (σ) based on said first and second signals, and for extracting said age of said object from a reference time for which a reference scent ratio (σ_0) is registered. An example of the recited calculating unit is the central processing unit 1 shown in Fig. 1 that performs the calculating described in paragraphs 0028 and 0029 of Appellant's Specification. The system of claim 1 further includes a display for displaying an indicator of the age. Examples of the recited display are screen 7 shown in Fig. 1 (Paragraph 0037) and the simplified indicators of portable device described at paragraph 0038 of Appellant's Specification.

There are no means-plus-function terms or step-plus-function terms in independent claims 1, 8-10 and 12, which are argued separately below in Section VII.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

There are four grounds of rejection presented for review:

1) the rejection of claims 9 and 13 under 35 U.S.C. § 102(b) as being anticipated by Tominaga et al.;

2) the rejection of claims 1, 3-5, 8 and 12 under 35 U.S.C. § 103 as being

obvious in view of Kita and Blixt et al.;

3) the rejection of claims 6 and 7 under 35 U.S.C. § 103 as being obvious in view of Kita and Tominaga et al. (and Blixt et al., see footnote 4, below, at page 19); and

4) the rejection of claims 10 and 11 under 35 U.S.C. § 103 as being obvious in view of Kita, Blixt et al. and Tominaga et al.

VII. ARGUMENT

A. 35 U.S.C. § 102

1. Claim 9

Claim 9 was rejected in the Office Action of October 3, 2007 (hereinafter "the Office Action") under 35 U.S.C. §102(b) as being anticipated by Tominaga et al. Appellant traverses the rejection for several reasons. First, claim 9 recites a method of marking an object with a volatile identification code that includes "spraying a first volatile component onto said object." Tominaga et al. is silent as to spraying any volatile component onto an object and so the rejection is improper.

The rejection is improper for the additional reason that Tominaga et al. fails to spray a second volatile component onto an object as recited in claim 9. Furthermore, Tominaga et al. fails to disclose using the volatile characteristics of two volatile components sprayed onto an object to define a volatile identification code as recited in claim 9.

It is noted that the Examiner at page 3 of the Office Action states "[a]s for spraying or applying these reagents, the purpose of the application is to make distinction or identify a particular flavor in a given wine species." The statement fails to recite one

passage in Tominaga et al. that discloses the recited spraying. Furthermore, the statement shows that the purpose of Tominaga et al. is not to mark an object with a volatile identification code as recited in claim 9.

For the reasons stated above, the rejection is improper and should be reversed.

2. Claim 13

Claim 13 was rejected in the Office Action under 35 U.S.C. §102(b) as being anticipated by Tominaga et al. Appellant traverses the rejection for several reasons. First, claim 13 depends directly on claim 9 and so its rejection is improper for the same reasons given above at pages 11-12 in Section VII.A.1 as to why the rejection of claim 9 is improper.

The rejection of claim 13 is improper for the additional reason that Tominaga et al. fails to disclose "sensing said volatile characteristics via a set of sensors that generate a distinctive signature that are associated with spraying both said first volatile component and said second volatile component on said object." Tominaga et al. does not disclose any sensors that sense volatile characteristics and generating a distinctive signature associated with spraying two volatile components and so the rejection is improper.

It is noted that the Examiner at page 3 of the Office Action asserts that Tominaga et al. discloses relative intensities being displayed via a "mass spectra which inherently provides sensors output that generate a distinctive signature" and so claim 13 is anticipated. Appellant disagrees. Assuming that the Examiner is referring to a mass spectrometer and not a mass spectra, Tominaga et al. does not specifically refer to a mass spectrometer. Assuming for argument's sake only that Tominaga et al. did use a

mass spectrometer, the rejection is still improper in that Appellant is unaware that such a mass spectrometer would necessarily require a plurality of sensors as recited in claim 13. Furthermore, such a mass spectrometer does not generate a distinctive signature associated with spraying two volatile components on an object as recited in claim 13.

For the reasons stated above, the rejection is improper and should be reversed.

B. 35 U.S.C. § 103

1. Kita and Blixt et al.

a. Claim 1

Claim 1 was rejected in the Office Action under 35 U.S.C. § 103 as being obvious in view of Kita and Blixt et al. Appellant traverses the rejection. In particular, independent claim 1 recites a method for determining an age of an object by simultaneously measuring the strengths of two scents with corresponding electronic sensors, wherein the decay rate constants of the two scents are known. The Examiner at page 4 of the Office Action makes the statement that "[t]he decay rate constant during the measurement associated to each measurement is relative to the measurement of the odor and is inherent in the measurement process of Kita" (underlined material added). Nowhere in Kita is there a discussion of a decay rate constant and so there is no disclosure that a decay rate constant of any odor measured is known. It certainly is not inherent to Kita that the decay rate constants of two scents are known, since Kita does not require a discussion of decay rate constants to describe the various odor measuring instruments described. Since Blixt et al. also does not mention knowing the decay rate constants of particular scents, there is no reason to alter Kita so that decay rate constants of two scents are known. Accordingly, the rejection is improper.

The rejection is improper for the additional reason that Kita does not disclose calculating a current scent ratio of two scent strengths as recited in claim 1. The Examiner asserts at page 4 of the Office Action that Kita calculates a current scent ratio as an angle between the vectors. That is not the case. Kita describes at page 145 that an odor vector is determined as the vector sum of: 1) a vector along the x-axis that represents the output of sensor A and 2) a vector along the y-axis that represents the output of sensor B. It is well known that the ratio of the magnitudes of the sensor signals A and B, B/A, is not equal to the angle, θ, between the vector and the x-axis, but is equal to the arctangent of that angle. Since knowing the angle alone would not be sufficient to determine the ratio of the magnitudes of sensor signals A and B, there is no disclosure in Kita to determine the ratio of the scent strengths. Since Blixt et al. does not disclose determining the ratio of scent strengths, the rejection is improper.

The Examiner has conceded at page 5 of the Office Action that Kita does not disclose the recited calculating of an age of an object and the displaying of such age. The Examiner at page 5 of the Office Action asserts that Blixt et al. discloses the recited calculating and displaying. While Blixt et al. discloses determining the amount of spoilage of an object, Blixt et al. is silent as to determining and displaying an age of the object. Since there is no reason in Blixt et al. to alter Kita to calculate and display an age of an object, the rejection is improper and should be reversed.

b. Claim 3

Claim 3 was rejected in the Office Action under 35 U.S.C. § 103 as being obvious in view of Kita and Blixt et al. Appellant traverses the rejection for several reasons. First, claim 3 depends directly on claim 1 and so its rejection is improper for the same reasons given above at pages 13-14 in Section VII.B.1.a as to why the rejection of claim 1 is improper.

The rejection is improper for the additional reason that Kita does not disclose calculating an age "by comparing said current scent ratio (σ) to preregistered data corresponding to respective age values." The Examiner at page 5 of the Office Action relies on page 145 of Kita as disclosing the recited comparing. A review of page 145 and the remaining portions of Kita reveals that there is no disclosure of comparing a scent ratio to preregistered data corresponding to respective age values in order to calculate an age. Since Blixt et al. also does not disclose the recited comparing, the rejection is improper and should be reversed.

c. Claim 4

Claim 4 was rejected in the Office Action under 35 U.S.C. § 103 as being obvious in view of Kita and Blixt et al. Appellant traverses the rejection for several reasons. First, claim 4 depends directly on claim 1 and so its rejection is improper for the same reasons given above at pages 13-14 in Section VII.B.1.a as to why the rejection of claim 1 is improper.

The rejection is improper for the additional reason that Kita does not disclose determining a reference scent ratio "by measuring said first and second scent strengths at an initial time from which said age of said object is to be determined." The Examiner at page 5 of the Office Action relies on page 145 of Kita as disclosing the recited comparing. A review of page 145 and the remaining portions of Kita reveals that there is no disclosure of measuring scent strengths at an initial time from which an age of an object is to be determined. Indeed, there is no mention of any frame of reference from which an age is determined of an object. Since Blixt et al. also does not disclose the recited measuring, the rejection is improper and should be reversed.

d. Claim 5

Claim 5 was rejected in the Office Action under 35 U.S.C. § 103 as being obvious in view of Kita and Blixt et al. Appellant traverses the rejection for several reasons. First, claim 5 depends directly on claim 1 and so its rejection is improper for the same reasons given above at pages 13-14 in Section VII.B.1.a as to why the rejection of claim 1 is improper.

The rejection is improper for the additional reason that Kita does not disclose determining first and second decay rate constants "during a process of characterizing of sensors measuring said first and second scents." The Examiner at page 6 of the Office Action relies on the table at page 143 of Kita as disclosing the recited determining of decay rate constants. A review of the table and the remaining portions of Kita reveals that there is no disclosure of determining decay rate constants. Since Blixt et al. also does not disclose determining decay rate constants, the rejection is improper and should be reversed.

e. Claim 8

Claim 8 was rejected in the Office Action under 35 U.S.C. § 103 as being obvious in view of Kita and Blixt et al. Appellant traverses the rejection. In particular, independent claim 8 recites a method of determining a freshness of goods from a reference time that includes: 1) "measuring a first strength of a first scent of said goods with a first electronic sensor, a decay rate constant (α_1) of said first scent being known," 2) "measuring simultaneously a second strength of a second scent of said goods with a second electronic sensor, a decay rate constant (α_2) of said second scent being known," and 3) "calculating a current scent ratio (σ) of said first and second scent strengths." These three elements are identical to those recited in claim 1. As mentioned above at pages 13-14 at Section VII.B.1.a, neither Kita nor Blixt et al. discloses any of the three elements. Accordingly the rejection is improper and should be withdrawn.

The Examiner has conceded at page 5 of the Office Action that Kita does not disclose the recited calculating of a freshness of goods starting from a reference time for which a reference scent ratio (σ_0) of said scent strengths has been registered and the displaying of an indicator of such freshness. The Examiner at page 5 of the Office Action asserts that Blixt et al. discloses the recited calculating and displaying. While Blixt et al. discloses determining the amount of spoilage of an object, Blixt et al. is silent as to calculating and displaying the freshness of goods in the manner recited in the claims. Accordingly, the rejection is improper and should be reversed.

f. Claim 12

Claim 12 was rejected in the Office Action under 35 U.S.C. § 103 as being obvious in view of Kita and Blixt et al. Appellant traverses the rejection. In particular, claim 12 recites a system for determining an age of an object containing first and second volatile components that includes "a calculating unit for calculating a current scent ratio (σ) based on said first and second signals, and for extracting said age of said object from a reference time for which a reference scent ratio (σ_0) is registered." As mentioned above at pages 13-14 in Section VII.B.1.a, Kita fails to disclose calculating a current scent ratio of two scent strengths as recited in claim 12. Since Kita fails to disclose such a calculating process it follows that Kita fails to disclose a calculating unit that can calculate a current scent ratio. Since Blixt et al. fails to disclose a calculating unit that calculates a current scent ratio, the rejection is improper and should be reversed.

The Examiner has conceded at page 5 of the Office Action that Kita does not disclose the recited calculating of an age of an object and the displaying of such an age. The Examiner at page 5 of the Office Action asserts that Blixt et al. discloses the recited calculating and displaying. While Blixt et al. discloses determining the amount of spoilage of an object, Blixt et al. is silent as to using both a calculating unit to determine an age of an object and a display for displaying an indicator of the age of the object. Accordingly, the rejection is improper and should be reversed.

2. Kita, Blixt et al. and Tominaga et al.

a. Claim 6

Claim 6 was rejected in the Office Action under 35 U.S.C. § 103 as being obvious in view of Kita, Blixt et al. and Tominaga et al.[4] Appellant traverses the rejection. In particular, claim 6 depends directly on claim 1. As mentioned above at pages 13-14 in Section VII.B.1.a, Kita and Blixt et al. fail to: 1) determine an age of an object by simultaneously measuring the strengths of two scents with corresponding electronic sensors, wherein the decay rate constants of the two scents are known, 2) calculating a current scent ratio of two scent strengths as recited in claim 1, 3) calculating an age of an object and 4) displaying an age of the object. Since Tominaga et al. also fails to disclose the four processes mentioned above, the rejection is improper and should be reversed.

The rejection is improper for the additional reason that Kita and Blixt et al. fail to spray two volatile components on an object, wherein each volatile component corresponds to a particular scent. The Examiner has conceded at page 6 of the Office Action that Kita does not disclose the recited spraying. The Examiner relies on Tominaga et al. for solving the deficiencies of Kita. As mentioned above at pages 11-12 of Section VII.A.1, Tominaga et al. is silent as to spraying any volatile components onto an object and so the rejection is improper.

[4] It is noted that the first paragraph of the rejection of claim 6 and 7 located at page 6 of the Office Action refers to only Kita and Tominaga et al. as the references being applied. In view of the fact that the remaining portions of the rejection mention the Blixt et al. reference, Appellants will assume that Blixt et al. is being applied to reject the claims as well.

Assuming for argument's sake only that Tominaga et al. did disclose spraying volatile components onto an object, there would be no reason to do so for the Kita devices. Kita discloses various devices for detecting odors that are already present at a certain location (see Introduction Section at pages 142 and 143). Since spraying Tominaga et al.'s volatile thiols at a location would mask or reduce the ability to detect the odors of a location, such spraying would reduce the effectiveness of using the Kita devices. Accordingly, there is a teaching away from spraying Tominaga et al.'s volatile thiols when using the Kita devices.

b. Claim 7

Claim 7 is rejected under 35 U.S.C. § 103 as being obvious in view of Kita, Blixt et al. and Tominaga et al. Appellant traverses the rejection for several reasons. First, claim 7 depends directly on claim 6 and so its rejection is improper for the same reasons given above at pages 19-20 in Section VII.B.2.a as to why the rejection of claim 6 is improper.

The rejection is improper for the additional reason that not one of Kita, Blixt et al. and Tominaga et al. discloses preregistering a reference scent ratio that corresponds to two scent strengths. Accordingly, the rejection is improper and should be reversed.

c. Claim 10

Claim 10 was rejected in the Office Action under 35 U.S.C. § 103 as being obvious in view of Kita, Blixt et al. and Tominaga et al. Appellant traverses the rejection. In particular, independent claim 10 recites a method of sealing an object that includes introducing into an impermeable seal attached to an object two volatile components. Not one of Kita, Blixt et al. or Tominaga et al. discloses introducing two volatile

components into an impermeable seal attached to an object. Regarding the vacuum sealed food of Blixt et al., introducing Tominaga et al.'s volatile thiols into the sealed food would mask or reduce the ability to detect spoilage of the food. Accordingly, there is a teaching away from introducing Tominaga et al.'s volatile thiols into Blixt et al.'s vacuum sealed food. Similarly, there is a teaching away from "simultaneously determining a first scent strength of said first volatile component and a second scent strength of said second volatile component at a time when said impermeable seal is unbroken."

The rejection is improper for the additional reason that not one of Kita, Blixt et al. and Tominaga et al. discloses determining a reference scent ratio (σ_0) from two scent strengths. Kita fails to disclose such determining for reasons similar to those given above at pages 13-14 in Section VII.B.1.a.

The rejection is improper for the additional reason that not one of Kita, Blixt et al. and Tominaga et al. discloses "determining whether said impermeable seal is broken based on said reference scent ratio (σ_0)." Since not one of the references discloses determining a reference scent ratio, there is no reason to perform the recited determining.

For the reasons stated above, the rejection is improper and should be reversed.

d. Claim 11

Claim 11 was rejected in the Office Action under 35 U.S.C. § 103 as being obvious in view of Kita, Blixt et al. and Tominaga et al. Appellant traverses the rejection for several reasons. First, claim 11 depends directly on claim 10 and so its rejection is

improper for the same reasons given above at pages 20-21 in Section VII.B.2.c as to why the rejection of claim 10 is improper.

The rejection is improper for the additional reason that not one of Kita, Blixt et al. and Tominaga et al. discloses "calculating a current scent ratio (σ) from said first scent strength and said second scent strength that are determined at said second time, wherein said seal is considered to have been broken if said current scent ratio (σ) differs from said reference scent ratio (σ_0) by more than an acceptable error ε" as recited in claim 11. The Examiner at pages 7 and 8 of the Office Action asserts that Kita discloses calculating the recited scent ratio. As pointed out above at pages 13-14 in Section VII.B.1.a, Kita does not disclose calculating the recited scent ratio. Kita also does not disclose determining if a seal is broken if a scent ratio differs from a reference scent ratio by more than an acceptable error as recited in claim 11. Since Blixt et al. and Tominaga et al. do not disclose calculating the recited scent ratio and determining if a seal is broken if a scent ratio differs from a reference scent ratio by more than an acceptable error, the rejection is improper and should be reversed.

It is noted that the Examiner at page 8 of the Office Action in the third full paragraph provides an elaborate attempt at establishing that the inventions of claims 10 and 11 are obvious in view of the combination of Kita, Blixt et al. and Tominaga et al. The arguments given in this section and in Section VII.B.2.c at pages 20-21, show that at best the arguments are an attempt to use improper hindsight and Appellant's own disclosure of his invention to reject the claims. Such arguments are improper. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1575 n.30, 1 USPQ2d 1593, 1602 n.30 (Fed. Cir.), *cert. denied,* 481 U.S. 1052 (1987).

For the reasons give above, Appellant respectfully submits that the rejections should be reversed.

Respectfully submitted,

John C. Freeman
Registration No. 34,483
Attorney for Appellant

BRINKS HOFER
GILSON & LIONE
P.O. Box 10395
Chicago, Illinois 60610
(312) 321-4200

Dated: March 3, 2008

VIII. CLAIMS APPENDIX

1. A method for determining an age of an object comprising:

measuring a first strength of a first scent of said object with a first electronic sensor, a decay rate constant (α_1) of said first scent being known;

measuring simultaneously a second strength of a second scent of said object with a second electronic sensor, a decay rate constant (α_2) of said second scent being known;

calculating a current scent ratio (σ) of said first and second scent strengths;

calculating said age of said object starting from a reference time for which a reference scent ratio (σ_0) of said scent strengths has been registered; and

displaying said age.

2. The method of claim 1, wherein said calculating said age is performed by applying to said current scent ratio σ the following formula, giving said age of said object as represented by the symbol t:

$$t = (\alpha_1 - \alpha_2)^{-1} \cdot \ln\left(\frac{\sigma}{\sigma_0}\right),$$

where σ_0 designates said reference scent ratio, and α_1 and α_2 designate said first and second decay rate constants of said first and second scents, respectively.

3. The method of claim 1, wherein said calculating said age is performed by comparing said current scent ratio (σ) to preregistered data corresponding to respective age values.

4. The method of claim 1, wherein said reference scent ratio (σ_0) is determined by measuring said first and second scent strengths at an initial time from which said age of said object is to be determined.

5. The method of claim 1, wherein said first and second decay rate constants (α_1, α_2) are determined during a process of characterizing of sensors measuring said first and second scents.

6. The method of claim 1, wherein said first scent is included in a first volatile compound sprayed on said object and said second scent is included in a second volatile compound sprayed on said object.

7. The method of claim 6, wherein said reference scent ratio (σ_0) is preregistered and corresponds to said first and second scent strengths when spraying said compound.

8. A method of determining a freshness of goods from a reference time, comprising:

measuring a first strength of a first scent of said goods with a first electronic sensor, a decay rate constant (α_1) of said first scent being known;

measuring simultaneously a second strength of a second scent of said goods with a second electronic sensor, a decay rate constant (α_2) of said second scent being known;

calculating a current scent ratio (σ) of said first and second scent strengths;

calculating said freshness of said goods starting from a reference time for which a reference scent ratio (σ_0) of said scent strengths has been registered; and

displaying an indicator of said freshness.

9. A method of marking an object with a volatile identification code, comprising:

spraying a first volatile component onto said object; and

spraying a second volatile component onto said object, wherein volatile characteristics of said first and second volatile components sprayed on said object define said volatile identification code.

10. A method of sealing an object, comprising:

introducing into an impermeable seal attached to said object a first volatile component;

introducing into said impermeable seal a second volatile component;

simultaneously determining a first scent strength of said first volatile component and a second scent strength of said second volatile component at a time when said impermeable seal is unbroken;

determining a reference scent ratio (σ_0) from said first scent strength and said second scent strength; and

determining whether said impermeable seal is broken based on said reference scent ratio (σ_0).

11. The method of claim 10, further comprising:

simultaneously determining a first scent strength of said first volatile component and a second scent strength of said second volatile component at a second time that is subsequent to said time when said impermeable seal is unbroken; and

calculating a current scent ratio (σ) from said first scent strength and said second scent strength that are determined at said second time, wherein said seal is considered to have been broken if said current scent ratio (σ) differs from said reference scent ratio (σ_0) by more than an acceptable error ε.

12. A system for determining an age of an object containing first volatile component and a second volatile component, comprising:

a first electronic sensor that generates a first signal in response to a first scent of said first volatile component;

a second electronic sensor that generates a second signal in response to a second scent of said second volatile component;

a calculating unit for calculating a current scent ratio (σ) based on said first and second signals, and for extracting said age of said object from a reference time for which a reference scent ratio (σ_0) is registered; and

a display for displaying an indicator of said age.

13. The method of claim 9, further comprising sensing said volatile characteristics via a set of sensors that generate a distinctive signature that are associated with spraying both said first volatile component and said second volatile component on said object.

14. The system of claim 12, wherein said calculating unit extracts said age of said object by applying to said current scent ratio σ the following formula, giving said age of said object as represented by the symbol t:

$$t = (\alpha_1 - \alpha_2)^{-1} \cdot \ln\left(\frac{\sigma}{\sigma_0}\right),$$

where σ_0 designates said reference scent ratio, and α_1 and α_2 designate first and second decay rate constants of said first and second scents, respectively.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.